RSF Elektronik

USER MANUAL
APG 801 1 VPP

ELECTRONIC SIGNAL TEST/ SET-UP BOX

10/2012

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1. GENERAL DESCRIPTION

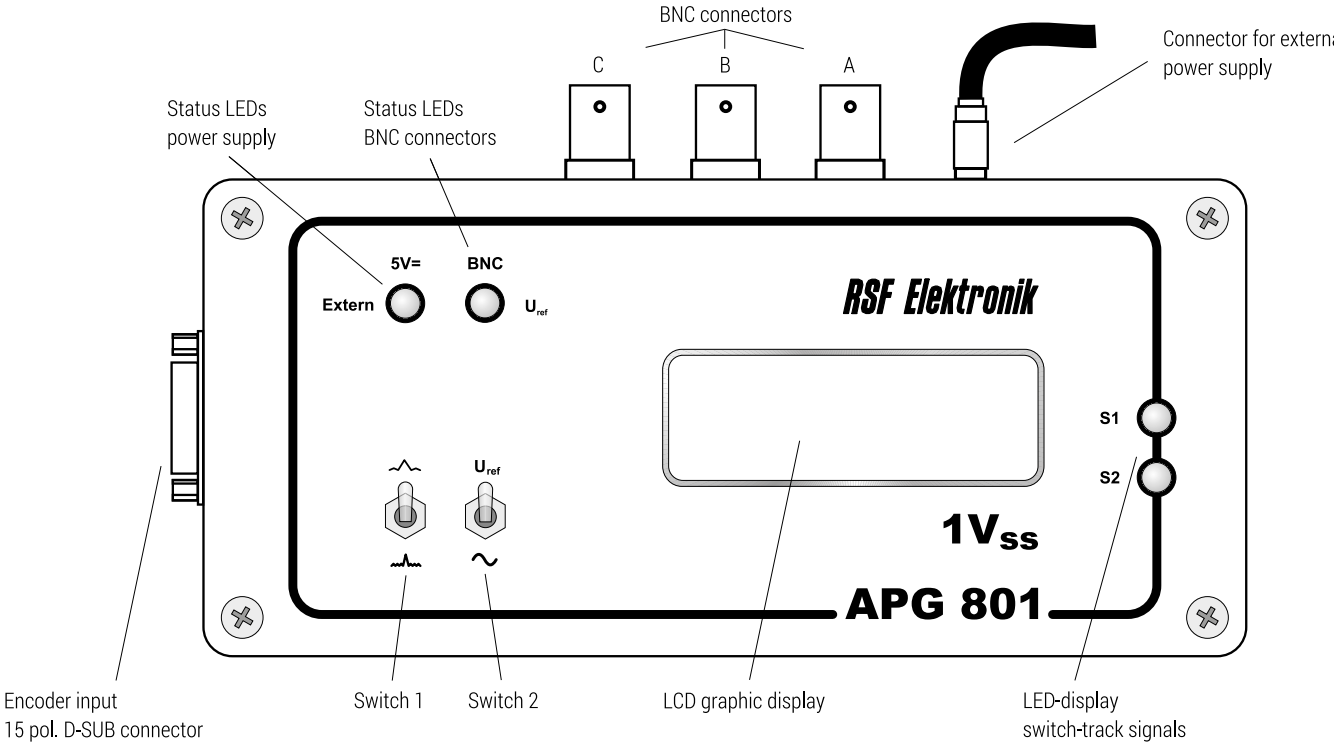
The APG 801 1 Vpp controls the output signal from 1 Vpp linear encoders with:

- Standard RI
- Wide (long) RI (MS 80, MS 82)

It is possible to monitor the size and quality of the counting signals and the width and position of the RI.
The measurement values are displayed on a LC Display.

The output signals of the linked linear encoder can also be monitored through BNC female connectors using an oscilloscope.

2. FUNCTIONAL ELEMENTS



Linear Encoder Input:
Linear encoder connection. An appropriate adaptor cable must be used depending on the version. For configuration see Section 3.

Power Cube Transformer Connection:
An external power cube transformer (5 V/1 A, stabilised) is required (included in delivery) to supply the APG 801 1 Vpp and the linked linear encoder

N.B. Power consumption is about 1 A for 5 V.

BNC female Connectors:
Control the linear encoder signals using an oscilloscope

LCD Graphic Display:
The size and quality of the counting signals and the position and width of the reference pulse are displayed.

Indicator LEDs Power Supply:
Lights up when +5 V power supply is present.

Indicator LEDs BNC Boxes:
This LED lights up if the 2.5 V reference voltage is applied to the BNC female connectors.

Indicator LED Switch Track Signal:
These LEDs indicate the switching status of the linear encoder switch track signals.

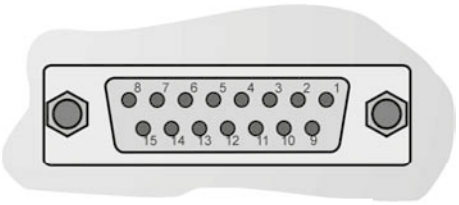
Switch 1:
This switch is used to select the RI type of the linear encoder to be monitored.

Linear encoders with long RI (MS 80, MS 82) can be monitored..

All linear encoders with Standard RI and 1 Vpp signals can be monitored.

Switch 2:
This switch is used in sine mode to switch the reference voltage U_{ref} (2.5 V) to the BNC connectors.

3. PIN ASSIGNMENTS



15 pin D-SUB female connector

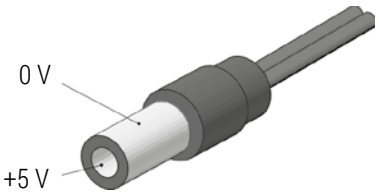
Pin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Signal	Test*	nc	nc	$\overline{RI}$	$\overline{A2}$	$\overline{A1}$	nc	+5 V	0 V	S1	S2	RI	A2	A1	nc

Test* = directly to +5 V

4. COMMISSIONING

- The linear encoder to be monitored is connected to the APG 801 1 Vpp linear encoder input.
  An appropriate adaptor cable must be used depending on the version.

- Connect the external power cube transformer to the testing device. Check the polarity of the low voltage plug when doing this



A power cube transformer with a stabilised output voltage of 5 V/1 A must be used.

- Select the linear encoder to be monitored using switch 1.
  Long RI: MS 80, MS 82
  Standard RI: all other linear encoders with 1 Vpp output signals

- Shift switch 2 into " ∿ " position (sine mode).

- Switch on power cube transformer.

5. SWITCH TRACK SIGNALS

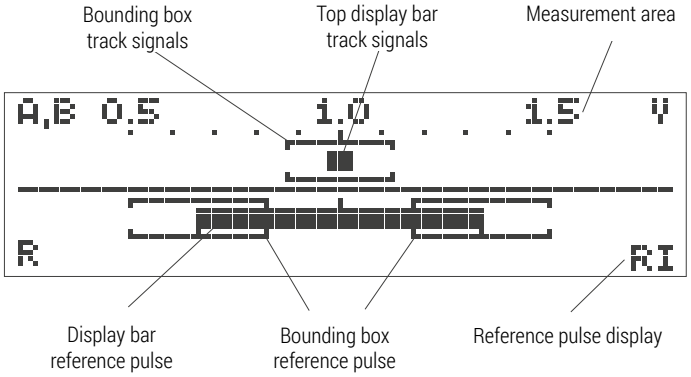
The switching status of S1 and S2 will each be displayed by a separate LED.

- Switch track signal output **High** = LED **lights up.**
- Switch track signal output **Low** = LED **does not light up.**

6. CONTROLLING THE LINEAR ENCODER SIGNALS WITH THE GRAPHIC DISPLAY

After the supply voltage has been applied, a 2 second welcome graphic appears on the graphic display showing the status of the integral software version. It then switches to measurement mode.

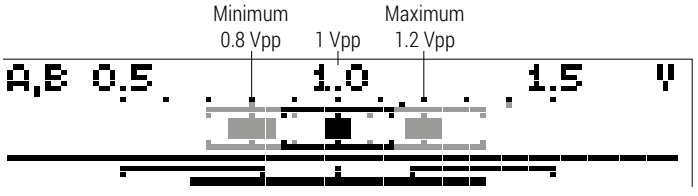
The display is divided into 2 sections. In the top half the size and quality of the counting signals are displayed. In the bottom half the width and position of the RI signal.



6.1. Counting Signals

The width of the display bar depends upon the sum of the signal deviation (amplitude ratio, phase deviation and offset). The position of the bar provides information on signal amplitude.

At optimum mounting, the display bar must be within the bounding box.



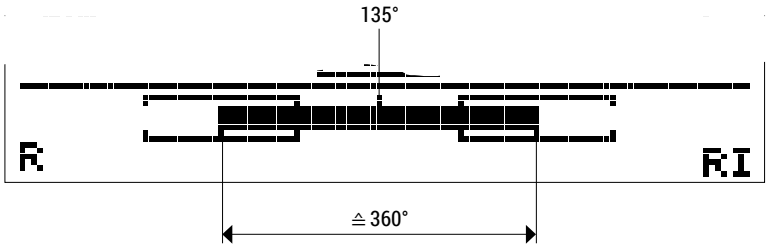
For signal amplitudes of less than 6 µA, there is an automatic switch over of the measurement area to a smaller measurement area. For signal amplitudes of more than 16 µA, the error message “SIGNALS TOO LARGE” will fade into the display.

6.2. Reference Pulse

The position of switch 1 is crucial to displaying the RI in the graphic display (long RI / Standard RI).
The display of the display bar depends on the type selected.
Traversing the RI mark makes the "RI" display in the lower right hand corner flash.

6.2.1 Encoder with Standard RI

RI width: The length of the bar indicates the width of the RI signal.
RI position: The RI position is indicated by the position of the bar.



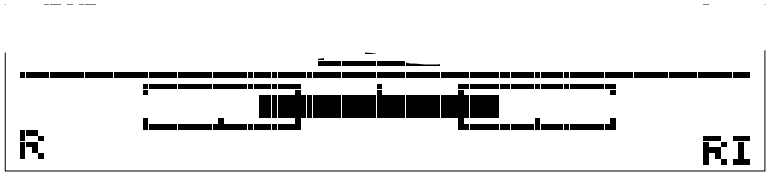
At optimum mounting, the bar must remain within the bounding box.

6.2.2 Linear Encoder with long RI: MS 80, MS 82

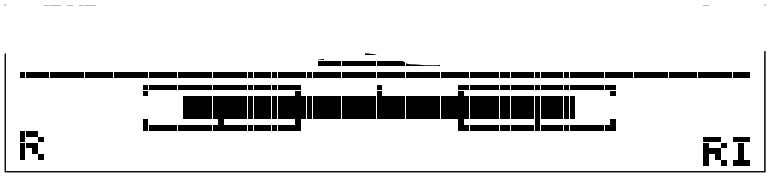
RI witdh: The actual width of the reference pulse for the particular linear encoder MS 80, MS 82 cannot be shown in the display. It will, however, be possible to see whether the width is within specified limits.

ideal

too narrow



too wide



RI position: The bar which is generated to show the RI width is always displayed at 135° (±2 pixels).

7. CONTROLLING THE LINEAR ENCODER SIGNALS WITH THE OSCILLOSCOPE

The linear encoder signals can be controlled at the BNC-connectors with an oscilloscope.
At optimum mounting, the signals must fulfill the requirements of the relevant signal specification.

- Shift switch 2 into "U_{ref}" position.
  The reference voltage on the BNC connector will be output as Uref.
- Set the oscilloscope input sensitivity to 0.5 V/div on all channels and set the Y-deflections to screen centre.
- Shift switch 2 into "~" position.

The current signals with voltage conversion are output at the BNC connectors.

Connector	**BNC-A**	**BNC-B**	**BNC-C**
Signal	A1	A2	RIa

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